

Greenhouse Gas Emissions

Chapter 3.7

SUMMARY OF FINDINGS

The proposed Project will not have any significant impacts related to Greenhouse Gas (GHG) Emissions. A detailed review of potential impacts is provided in the analysis below.

INTRODUCTION

California Environmental Quality Act (CEQA) Requirements

Section 15064.4 Determining the Significance of Impacts from Greenhouse Gas Emissions

- “(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
- (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
 - (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
- (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the projects incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.”¹

¹ 2012 CEQA Guidelines, Section 15064.4

ENVIRONMENTAL SETTING

“Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The major concern is that increases in GHGs are causing global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. The gases believed to be most responsible for global warming are water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).”²

“These gases trap some amount of solar radiation and the Earth’s own radiation, preventing it from passing through Earth’s atmosphere and into space. Greenhouse gases are vital to life on Earth; without them Earth would be an icy planet. CO₂ is also a trace element that is essential to the cycle of life. It is essential to plant growth and studies have shown that vegetation growth has increased in North America commensurate with the increase in CO₂ over the past decades. However, increasing greenhouse gas concentrations tend to warm the planet. A warming trend of about 0.7°F to 1.5°F reportedly occurred during the 20th century, and a number of scientific analyses indicate that rising levels of greenhouse gases in the atmosphere may be contributing to climate change.

As the average temperature of the Earth increases, weather may be affected, including changes in precipitation patterns, accumulation of snow pack, and intensity and duration of spring snowmelt. There may be rises in sea level, resulting in coastal erosion and inundation of coastal areas. Emissions of air pollutants and ambient levels of pollutants also may be affected in areas. Climate zones may change, affecting the ecology and biological resources of a region. There may be changes in fire hazards due to the changes in precipitation and climate zones.

While scientists have established a connection between increasing CO₂ concentrations and increasing average temperatures, important scientific questions remain about how much warming will occur, how fast it will occur, and how the warming will affect the rest of the climate system. At this point, scientific efforts are unable to quantify the degree to which human activity impacts climate change. The phenomenon is worldwide, yet it is expected that there will be substantial regional and local variability in climate changes. It is not possible with today’s science to determine the affect of global climate change in a specific locale, or whether the effect of one aspect of climate change may be counteracted by another aspect of climate change, or exacerbated by it.

Human activities generate greenhouse gases. Since pre-industrial times, there has been a build-up of levels of gases like carbon dioxide (CO₂) in the atmosphere. The human contribution to the increase in atmospheric CO₂ concentrations largely has resulted from the burning of fossil fuels. Fossil fuel combustion accounts for approximately 98% of carbon dioxide emissions from human activity.

² General Plan Background Report, page 6-17

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The United States has the highest emissions of greenhouse gases of any nation on Earth, though CO₂ emissions in California are less than the national average, both in per capita emissions and in emissions per gross state product. Transportation is the largest source of CO₂ emissions in California, accounting for approximately 41 percent of total emissions. Electricity generation accounts for approximately 22 percent of CO₂ emissions in California, and the industrial sector accounts for approximately 20.5 percent.³

“In 2007, Tulare County generated approximately 5.2 million tonnes of Carbon Dioxide Equivalent (CO₂e). The largest portion of these emissions (63 percent) is attributed to dairies/feedlots, while the second largest portion (16 percent) is from mobile sources.”⁴

Table 3.7-1
Emissions by Sector in 2007⁵

Sector	CO₂e (tonnes/year)	% of Total
Electricity	542,690	11%
Natural Gas	321,020	6%
Mobile Sources	822,230	16%
Dairy/Feedlots	3,294,870	63%
Solid Waste	227,250	4%
Total	5,208,060	100%
Per Capita	36.1	

Source: General Plan Background Report

As a solid waste project, the Project is currently permitted to accept 500 tons per day, and plans to expand its permitted capacity to 1,000 tons per day. Increasing the throughput tonnages will have greenhouse gas impacts. “Processing a greater amount of material will generate more emissions, but the avoided emissions from recycling, composting and providing biomass energy feedstock will reduce greenhouse gas emissions.”⁶

The Tulare County General Plan contains the following: “Enhancement of the greenhouse effect can occur when concentrations of GHGs exceed the natural concentrations in the atmosphere. Of these gases, CO₂ and methane are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane primarily results from off-gassing associated with agricultural practices and landfills. SF₆ is a GHG commonly used in the utility industry as an insulating gas in transformers and other electronic equipment. There is widespread international scientific agreement that human-caused increases in GHGs has and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

³ Air Quality Impact Analysis, pages 38-39

⁴ General Plan Background Report, page 6-33

⁵ Ibid., page 6-34

⁶ Air Quality Impact Analysis, pages 38 to 39

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Some of the potential resulting effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CARB, 2006). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.”⁷

Thresholds of Significance

“The San Joaquin Valley Air Pollution Control District proposes the following process... for determining the cumulative significance of project specific GHG emissions on global climate change when issuing permits for stationary source projects.”⁸

- “Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.”⁹
- “Projects not implementing Best Performance Standards would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29%, compared to BAU, including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in ARB’s AB 32 Scoping Plan. Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.”¹⁰
- “Projects requiring preparation of an Environmental Impact Report would require

⁷ General Plan Background Report, pages 6-27 to 6-28

⁸ District Policy, Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as Lead Agency, page 8

⁹ Ibid, page 8

¹⁰ Ibid, page 9

quantification of project specific GHG emissions. Projects implementing BPS or achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.”¹¹

REGULATORY SETTING

Federal Agencies & Regulations

US EPA Waste Reduction Model (WARM)

“EPA created the Waste Reduction Model (WARM) to help solid waste planners and organizations track and voluntarily report greenhouse gas (GHG) emissions reductions from several different waste management practices... WARM calculates and totals GHG emissions of baseline and alternative waste management practices—source reduction, recycling, combustion, composting, and landfilling. The model calculates emissions in metric tons of carbon equivalent (MTCE), metric tons of carbon dioxide equivalent (MTCO₂E), and energy units (million BTU) across a wide range of material types commonly found in municipal solid waste (MSW). For information on the data and methodologies behind the calculations, please see the model documentation.

WARM is periodically updated as new information becomes available and new material types are added. Users may refer to the model history to better understand the differences among various versions of WARM.”¹²

State Agencies & Regulations

California Air Resources Board

“The Air Resources Board (ARB or Board) has established State ambient air quality standards (State standards) to identify outdoor pollutant levels considered safe for the public. After State standards are established, State law requires ARB to designate each area as attainment, nonattainment, or unclassified for each State standard. The area designations, which are based on the most recent available data, indicate the healthfulness of air quality throughout the State.”¹³ The California Air Resources Board has prepared the 2004 Carbon Monoxide State Implementation Plan.

San Joaquin Valley Air Pollution Control District (Air District)

“The San Joaquin Valley Air District is a public health agency whose mission is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial

¹¹ Ibid, page 9

¹² Waste Reduction Model (WARM), http://www.epa.gov/climatechange/waste/calculators/Warm_home.html

¹³ Cal/EPA Air Resources Board, <http://www.arb.ca.gov/desig/desig.htm>

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air quality-management strategies.”¹⁴ “The San Joaquin Valley Air Pollution Control District is made up of eight counties in California’s Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and the San Joaquin Valley Air Basin portion of Kern.”¹⁵

The San Joaquin Valley Air Pollution Control District (Air District) determined that the quantification of GHG Emissions is expected for all projects that require an Environmental Impact Report.¹⁶

California Clean Air Act

“The California CAA of 1988 establishes an air quality management process that generally parallels the federal process. The California CAA, however, focuses on attainment of the State ambient air quality standards,... which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards. Responsibility for meeting California’s standards is addressed by the CARB and local air pollution control districts (such as the eight county AIR DISTRICT, which administers air quality regulations for Tulare County). Compliance strategies are presented in district-level air quality attainment plans.”¹⁷

Executive Order S-3-05

“In 2005, in recognition of California’s vulnerability to the effects of climate change, Governor Schwarzenegger issued Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order additionally ordered that the Secretary of the California Environmental Protection Agency (Cal EPA) would coordinate oversight of the efforts among state agencies made to meet the targets and report to the Governor and the State Legislature biannually on progress made toward meeting the GHG emission targets. Cal EPA was also directed to report biannually on the impacts to California of global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry, and prepare and report on mitigation and adaptation plans to combat these impacts.

In response to the Executive Order, the Secretary of Cal EPA created the Climate Action Team (CAT), composed of representatives from the Air Resources Board; Business, Transportation, & Housing; Department of Food and Agriculture; Energy Commission; California Integrated Waste Management Board (CIWMB); Resources Agency; and the Public Utilities Commission (PUC). The CAT prepared a recommended list of strategies for the state to pursue to reduce climate change emission in the state (Climate Action Team, 2006).”¹⁸

¹⁴ http://www.valleyair.org/General_info/aboutdist.htm#Mission

¹⁵ Ibid.

¹⁶ District Policy, Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as Lead Agency, page 6

¹⁷ Tulare County 2030 General Plan RDEIR, pages 3.3-2 to 3.3-3

¹⁸ General Plan Background Report, page 6-19

Assembly Bill 32: California Global Warming Solutions Act of 2006

“In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which requires the CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020.

The bill also requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The bill authorizes CARB to adopt market-based compliance mechanisms. The bill additionally requires the state board to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board, pursuant to specified provisions of existing law. The bill also authorizes CARB to adopt a schedule of fees to be paid by regulated sources of GHG emissions. Because the bill requires CARB to establish emissions limits and other requirements, the violation of which would be a crime, this bill would create a state-mandated local program.

Under AB 32, by June 30, 2007, CARB was to identify a list of discrete early action GHG reductions that will be legally enforceable by 2010. By January 1, 2008, CARB was also to adopt regulations that will identify and require selected sectors to report their statewide GHG emissions. By January 1, 2011, CARB must adopt rules and regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG reductions. CARB is authorized to enforce compliance with the program that it develops.”¹⁹

Senate Bill 97

“Governor Schwarzenegger signed Senate Bill (SB) 97 (Sutton), a CEQA and GHG emission bill, into law on August 24, 2007. SB 97 requires the Governor’s Office of Planning and Research (OPR) to prepare CEQA guidelines for the mitigation of GHG emissions, including, but not limited to, effects associated with transportation or energy consumption. OPR must prepare these guidelines and transmit them to the Resources Agency by July 1, 2009. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for greenhouse gas emissions. The Resources Agency must then certify and adopt the guidelines by January 1, 2010. OPR and the Resources Agency are required to periodically review the guidelines to incorporate new information or criteria adopted by CARB pursuant to the Global Warming Solutions Act, scheduled for 2012.

The OPR published a Technical Advisory in June of 2008 that is an “informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents” to serve in the interim until guidelines are established pursuant to SB 97 (OPR, 2008). This Advisory recommends that CEQA documents include quantification of estimated GHG emissions associated with a proposed project and that a determination of significance be made. With regard to significance the Advisory states that “lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions or other

¹⁹ General Plan Background Report, page 6-20

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scientific data to clearly define what constitutes a “significant impact”, individual lead agencies may undertake a project-by-project analysis, consistent with the available guidance and current CEQA practice”.²⁰

Climate Change Scoping Plan

“The CARB published a *Climate Change Scoping Plan* in December 2008 (CARB, 2008c) that outlines reduction measures to lower the state’s GHG emissions to meet the 2020 limit. The *Scoping Plan* “proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health”. Key elements for reducing California’s GHG emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.”²¹

Compost Reduction Emission Factor (CERF)

CERF has been established by the California Air Resources Board. “The boundary, or life-cycle stages used to quantify the compost emission reduction factor (CERF),... establishes the greenhouse gas emission reductions of compost application and greenhouse gas emissions from composting organic waste... There are three main emission sources that occur during the composting process: transportation emissions occurring from the collection of the initial feedstock and delivery of the finished compost; energy and water emissions from the composting management process; and fugitive emissions from the anaerobic decomposition of the composted materials. The significance of each emission is important because it detracts from the overall emission benefit of compost use. The emissions that are discussed in this method are consistent with the emissions in studies evaluating the GHG emissions from composting.”²²

²⁰ General Plan Background Report, page 6-23 to 6-24

²¹ Ibid., page 6-24 to 6-25

²² Method for estimating greenhouse gas emission reductions from compost from commercial organic waste, page 5

Local Policy & Regulations

Tulare County General Plan Policies

The General Plan has a number of policies that apply to projects within Tulare County that support reduction efforts of GHG. General Plan policies that relate to the proposed Project are listed below.

AQ-1.7 Support Statewide Climate Change Solutions

The County shall monitor and support the efforts of Cal/EPA, CARB, and the SJVAPCD, under AB 32 (Health and Safety Code §38501 et seq.), to develop a recommended list of emission reduction strategies. As appropriate, the County will evaluate each new project under the updated General Plan to determine its consistency with the emission reduction strategies.

AQ-1.8 Greenhouse Gas Emissions Reduction Plan/Climate Action Plan

The County will develop a Greenhouse Gas Emissions Reduction Plan (Plan) that identifies greenhouse gas emissions within the County as well as ways to reduce those emissions. The Plan will incorporate the requirements adopted by the California Air Resources Board specific to this issue. In addition, the County will work with the Tulare County Association of Governments and other applicable agencies to include the following key items in the regional planning efforts.

1. Inventory all known, or reasonably discoverable, sources of greenhouse gases in the County,
2. Inventory the greenhouse gas emissions in the most current year available, and those projected for year 2020, and
3. Set a target for the reduction of emissions attributable to the County's discretionary land use decisions and its own internal government operations.

AQ-1.9 Support Off-Site Measures to Reduce Greenhouse Gas Emissions

The County will support and encourage the use of off-site measures or the purchase of carbon offsets to reduce greenhouse gas emissions.

AQ-1.10 Alternative Fuel Vehicle Infrastructure

County shall support the development of necessary facilities and infrastructure needed to encourage the use of low or zero-emission vehicles (e.g. electric vehicle charging facilities and conveniently located alternative fueling stations, including CNG filling stations.)

Tulare County Climate Action Plan

“The Tulare County Climate Action Plan (CAP) serves as a guiding document for County of Tulare (“County”) actions to reduce greenhouse gas emissions and adapt to the potential effects of climate change. The CAP is an implementation measure of the 2030 General Plan Update. The General Plan provides the supporting framework for development in the County to produce fewer greenhouse gas emissions during Plan buildout. The CAP builds on the General Plan’s

framework with more specific actions that will be applied to achieve emission reduction targets consistent with California legislation.”²³

IMPACT EVALUATION

Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Project Impact Analysis: *Less than Significant Impact (Overall Benefit)*

Truck and Equipment Usage

“The primary source of GHG emissions from the proposed Project is from mobile sources and construction equipment. There are a number of factors available for estimating the GHG from mobile sources and combustion engines used in composting operations. The GHG from the proposed Project were estimated using the CalEEMod and EMFAC2001 emissions model programs and California Climate Action Registry - IPCC Emissions Factors and are shown in Table [3.7-2].

Table 3.7-2
Estimated Non-Mitigated Annual Greenhouse Gas Emissions (Tons/Year)

Source	CO ₂	CH ₄	N ₂ O	CO ₂ e	CO ₂ e	CO ₂ e
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/day)	(tons/wk)
Construction Emissions						
Construction Emissions (2013)	508.51	0.06	0.00	509.70	1.96	9.80
Construction Emissions (2014)	59.64	0.01	0.00	59.78	2.85	14.23
Operational Emissions						
On-site Equipment Emissions	103.15	0.01	0.00	103.40	0.33	1.98
Truck Travel Emissions	308.88	0.06	0.00	311.30	0.99	5.97
Total Operational Emissions	412.03	0.07	0.00	414.70	1.32	7.95
AIR DISTRICT Threshold	-	-	-	25,000	-	-
Is Threshold Exceeded?	-	-	-	No	-	-

*Note: 0.00 could represent <0.00

Source: Air Quality Impact Analysis

The proposed Project will not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF₆), the other gases identified as GHG in AB32. However, the impacts on global warming and climate change are indirect, not direct, and the emissions cannot be correlated with specific impacts based on currently available

²³ Tulare County Climate Action Plan, page 1

science. While climate change may be presumed to have global impacts, local government lacks the expertise, and/or regulatory authority to develop the scientific tools and policies needed to select a CEQA significance threshold for climate change or greenhouse gas emissions. The proposed Project will be subject to any regulations developed under AB32 as determined by CARB.”²⁴

“However, since the Air District uses a 25,000 metric ton CO₂e threshold for permitting purposes this analysis utilized that threshold for a significance impact limit on global climate change or on the environment in California. As demonstrated in Table 11-1, this project does not exceed the Air District threshold of 25,000 metric tons of CO₂e, therefore, the project’s cumulative impacts to global climate change are considered Less Than Significant.”²⁵

Anaerobic Digester

According to the Waste Reduction Model (WARM), diversion of 60,000 tons of food scraps from landfills would result in a GHG reduction of 41,471 MTCO₂E (Metric Tons of CO₂ Equivalent). Another 7,230 MTCO₂E could be saved through combustion of food scraps. The total potential GHG reduction would be 48,702 MTCO₂E.²⁶ Although anaerobic digestion does not result in immediate combustion, the use of natural gas could have similar GHG reduction from electricity generation as combustion. Without specific GHG reduction data applicable to the anaerobic digester proposed as part of the Project, this Waste Reduction Model estimate is the best available approximation for GHG benefits that could be derived from the anaerobic digester.

Composting

In addition to the anaerobic digester, the expanded tonnage of composting would have further GHG benefits. The US Composting Council found the following three benefits:

- “The biggest benefit for most composting projects comes from emission avoidance; primarily from keeping methane generating organics out of landfills or lagoons. Landfills with methane capture systems result in less GHG benefits.
- The composting process has the potential to produce some GHG, but those can be minimized. Good composting practices that balance the carbon:nitrogen ratio and provide adequate aeration and moisture will minimize GHG emissions.
- The end use of the compost provides some GHG benefits, both directly through sequestration and indirectly through improved soil health, reduced soil loss, increased water infiltration and storage, and reduction of other inputs.”²⁷

There is variability in the actual amount of GHG reduction through composting because of variability in materials, soil moisture, aeration, etc. For the State of California, the compost emission reduction factor (CERF) is standard for GHG reduction for compost. The

²⁴ Air Quality Impact Analysis, pages 38 to 39

²⁵ Ibid., pages 38 to 39

²⁶ Waste Reduction Model website, http://www.epa.gov/climatechange/waste/calculators/Warm_Form.html

²⁷ Greenhouse Gases and the Role of Composting: A Primer for Compost Producers, <http://compostingcouncil.org/admin/wp-content/uploads/2010/09/Greenhouse-Gases-and-the-Role-of-Composting.pdf>

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California Air Resources Board calculated a CERF of 0.42 MTCO₂E/ton of feedstock. With this factor, the additional 60,000 tons of compostable material will result in a GHG reduction of 25,200 MTCO₂E. This will be an environmental benefit in terms of GHG reduction.

Total GHG Impact

The total potential GHG impact from the proposed Project is an estimated reduction of 73,487 MTCO₂E. See **Table 3.7-3** below.

**Table 3.7-3
Total Change in GHG**

Project Element	GHG Change MTCO ₂ E
Truck & Equipment Operations	414.70
Anaerobic Digester	(48,702)
Composting	(25,200)
Total	(73,487.3)

Source: Derived from Air Quality Impact Analysis, WARM Website, and CERF calculation.

With an overall reduction in GHGs, the proposed Project will result in less than significant Project specific impacts.

Cumulative Impact Analysis: ***Less than Significant Impact (Overall Benefit)***

The geographic area of this cumulative analysis is the San Joaquin Air Basin. This cumulative analysis is based on the information provided in the Air Quality Impact Assessment

Truck and Equipment Usage

“In 2030, Tulare County is forecast to generate approximately 6.1 million tonnes of CO₂e. The largest portion of these emissions (59 percent) is attributed to dairies/feedlots, while the second largest portion (20 percent) is from mobile sources. Per capita emissions in 2030 are projected to be approximately 27 tonnes of CO₂E per resident.”²⁸

**Table 3.7-4²⁹
Projected Emissions by Sector in 2030**

Sector	CO ₂ e (tonnes/year)	% of Total
Electricity	660,560	11%
Natural Gas	384,410	6%
Mobile Sources	1,212,370	20%
Dairy/Feedlots	3,601,390	59%
Solid Waste	246,750	4%

²⁸ General Plan Background Report, page 6-34

²⁹ Ibid., page 6-34

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Total	6,105,480	100%
Per capita	27.4	

Source: General Plan Background Report

“The Project will potentially contribute to cumulative greenhouse gas emissions in California as well as related health effects. The Project emissions will be only a small fraction of the statewide greenhouse gas emissions. However, without the necessary science and analytical tools, it is not possible to assess, with certainty, whether the Project’s contribution will be cumulatively considerable, within the meaning of CEQA Guidelines Sections 15065(a)(3) and 15130. CEQA, however, does note that the more severe environmental problems the lower the thresholds for treating a Project’s contribution to cumulative impacts as significant. Given the position of the legislature in AB32 which states that global warming poses serious detrimental effects, and the requirements of CEQA for the lead agency to determine that a Project not have a cumulatively considerable contribution, the effect of the Project’s CO₂ contribution may be considered cumulatively considerable. This determination is based on the lack of clear scientific evidence or other criteria for determining the significance of the Project’s contribution of GHG to the air quality in the SJVAB.”³⁰

“CEQA requires that all feasible and reasonable mitigation be applied to the Project to reduce the impacts from construction and operations on air quality. The San Joaquin Valley Air Pollution Control District’s “Non-Residential On-Site Mitigation Checklist” was utilized in preparing the mitigation measures and evaluating the Projects features. These measures include using controls that limit the exhaust from construction equipment and using alternatives to diesel when possible. Additional reductions will be achieved through the regulatory process of the air district and CARB as required changes to diesel engines are implemented which will affect the product delivery trucks and limits on idling.

AB32 requires that a list of emission reduction strategies be published to achieve the goals set forth in the law. Until CARB publishes those reduction strategies, emission reduction strategies to meet the Governor’s Executive Order S-3-05 should be considered.

The strategies that CARB is implementing that may help in reducing the Project’s GHG emissions are summarized in the table below.”³¹

Table 3.7-5
Select CARB Greenhouse Gas Emission Reduction Strategies

Strategy	Description of Strategy
Statewide Measures	
Vehicle Climate Change Standards	AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in Sept. 2004.
Diesel Anti-Idling	In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.

³⁰ Air Quality Impact Analysis, pages 38 to 39

³¹ Ibid., pages 38 to 39

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Other Light-Duty Vehicle Technology	New standards would be adopted to phase in beginning in the 2017 model year.
Alternative Fuels: Biodiesel Blends	CARB would develop regulations to require the use of 1% to 4% Biodiesel displacement of California diesel fuel.
Alternative Fuels: Ethanol	Increased use of ethanol fuel.
Heavy-Duty Vehicle Emission Reduction Measures	Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.

Source: Air Quality Impact Analysis

“While it will not be practical for the Project to implement all of these suggested strategies, legislatively driven changes in the future will further reduce the Project’s GHG footprint.”³²

CEQA Guidelines Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a Project-by-Project basis. Global climate change is this type of issue. The causes and effects may not be just regional or statewide, they may be worldwide. Given the uncertainties in identifying, let alone quantifying the impact of any single Project on global warming and climate change, and the efforts made to reduce emissions of greenhouse gases from the Project through design, in accordance with CEQA Section 15130, any further feasible mitigation will be accomplished through CARB regulations adopted pursuant to AB32. Since the Project will employ all possible long-term GHG emissions reduction strategies possible the cumulative impacts of the Project to global climate change are considered less than significant.”³³

“Since the Air District uses a 25,000 metric ton CO₂e threshold for permitting purposes this analysis utilized that threshold for a significance impact limit on global climate change or on the environment in California. As demonstrated in [Table 3.7-2] this project does not exceed the Air District threshold of 25,000 metric tons of CO₂e, therefore, the project’s cumulative impacts to global climate change are considered less than significant.”³⁴

Anaerobic Digester

As noted in the earlier discussion regarding the Project Impact Analysis, the proposed Project will have an overall benefit in terms of reducing GHGs. As such, there will be an overall cumulative benefit toward reduction of GHGs.

Composting

As noted in the Project Impact Analysis, the proposed Project will result in an overall benefit in terms of reducing GHGs. As such, there will be an overall cumulative benefit toward reduction of GHGs.

³² Air Quality Impact Analysis, page 41

³³ Ibid., pages 38 to 39

³⁴ Ibid., pages 38 to 39

Mitigation Measures:

None Required.

Conclusion:

Less than Significant Impact (Overall Benefit)

The proposed Project will have an overall benefit related toward reduction of GHGs. No mitigation is required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Project Impact Analysis:

No Impact

This Project does not conflict with the Tulare Climate Action Plan, the Tulare County General Plan, or any Air District Regulations, for the purpose of reducing greenhouse gas emissions.

The truck trips and equipment operations GHG generation does not exceed the Air District standards. The proposed Project's objectives and Project components are consistent with the goals of AB 32 and greenhouse gas reduction and the proposed Project will result in an overall reduction in GHGs. Thus, the proposed Project is consistent with the aforementioned plans, policies, and regulations. No Project specific impacts related to this checklist item will occur.

Cumulative Impact Analysis:

No Impact

The geographic area of this cumulative analysis is the San Joaquin Air Basin. This cumulative analysis is based on the information provided in the Air Quality Impact Assessment

As the proposed Project is consistent with aforementioned plans, policies, and regulations, no cumulative impacts related to this checklist item will occur.

Mitigation Measures:

None Required.

Conclusion:

No Impact

As the proposed Project is consistent with aforementioned plans, policies, and regulations, no project specific or cumulative impacts related to this checklist item will occur.

DEFINITIONS/ACRONYMS

Definitions

Achieved-in-Practice

“Any equipment, technology, practice or operation available in the United States that has been installed and operated or used at stationary source site for a reasonable period of time sufficient to demonstrate that the equipment, technology, practice or operation is reliable when operated in a manner that is typical for the process. In determining whether equipment, technology, practice or operation is Achieved-in-Practice, the District will consider the extent to which grants, incentives or other financial subsidies influence the economic feasibility of its use.”³⁵

Approved Alternate Technology

“Any District approved, Non-Achieved-in- Practice GHG emissions reduction measure equal to or exceeding the GHG emission reduction percentage for a specific BPS.”³⁶

Baseline

“The three year average (2002-2004) of GHG emissions for a type of equipment or operation within an identified class and category, expressed as annual GHG emissions per unit.”³⁷

Best Performance Standard

“For a specific Class and Category, the most effective, District approved, Achieved-In-Practice means of reducing or limiting GHG emissions from a GHG emissions source, that is also economically feasible per the definition of Achieved-in-Practice. BPS includes equipment type, equipment design, and operational and maintenance practices for the identified service, operation, or emissions unit class and category.”³⁸

Business-as-Usual

“The emissions for a type of equipment or operation within an identified class and category projected for the year 2020, assuming no change in GHG emissions per unit of activity as established for the baseline period.”

Category

“A District approved subdivision within a “class” as identified by unique operational or technical aspects.”³⁹

Class

“The broadest District approved division of stationary GHG sources based on fundamental type of equipment or industrial classification of the source operation.”⁴⁰

³⁵ District Policy, Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as Lead Agency, page 6

³⁶ Ibid, page 6

³⁷ Ibid, page 7

³⁸ Ibid, page 7

³⁹ Ibid, page 7

⁴⁰ Ibid, page 7

Global Warming

“Global warming is an increase in the temperature of the Earth's troposphere. Global warming has occurred in the past as a result of natural influences, but the term is most often used to refer to the warming predicted by computer models to occur as a result of increased emissions of greenhouse gases.”⁴¹

Greenhouse Gas

“Greenhouse gas (GHG) emissions are the release of any gas that absorbs infrared radiation in the atmosphere. Generally when referenced in terms of global climate they are considered to be harmful. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).”⁴²

Operational Boundaries

“Operational boundaries are defined as “[t]he boundaries that determine the direct and indirect emissions associated with operations owned or controlled by the reporting company. This assessment allows a company to establish which operations and sources cause direct and indirect emissions, and to decide which indirect emissions to include that are a consequence of its operations” (GHG Protocol, 2008).”⁴³

Acronyms

(AB)	Assembly Bill
(ARB)	Air Resources Board (Short for CARB)
(BAU)	Business As Usual
(BPS)	Best Performance Standards
(CAA)	Clean Air Act
(Cal EPA)	California Environmental Protection Agency
(CARB)	California Air Resources Board
(CERF)	Compost Reduction Emission Factor
(CH ₄)	Methane
(CO ₂)	Carbon Dioxide
(GHG)	Greenhouse Gases
(HFCs)	Hydrofluorocarbons
(MRF/TS)	Material Recovery Facility/Transfer Station
(MSW)	Municipal Solid Waste
(N ₂ O)	Nitrous Oxide
(OPR)	Governor’s Office of Planning and Research
(PFCs)	Perfluorocarbons
(SF ₆)	Sulfur Hexafluoride
(AIR DISTRICT)	San Joaquin Valley Air Pollution Control District
(WARM)	Waste Reduction Model

⁴¹ General Plan Background Report, page 6-3

⁴² Ibid., page 6-3

⁴³ Ibid., page 6-29

REFERENCES

Tulare County 2030 General Plan, August 2012

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2012 CEQA Guidelines

Air Quality Impact Analysis, Insight, September 2012

District Policy, Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as Lead Agency, San Joaquin Valley Air Pollution Control District, December 17, 2009

EPA Waste Reduction Model (WARM),
http://www.epa.gov/climatechange/waste/calculators/Warm_home.html

Cal/EPA Air Resources Board, <http://www.arb.ca.gov/desig/desig.htm>

San Joaquin Valley Air Pollution Control District Website,
http://www.valleyair.org/General_info/aboutdist.htm#Mission

Tulare County 2030 General Plan, Recirculated Draft Environmental Impact Report (RDEIR), February 2010

Method for estimating greenhouse gas emission reductions from compost from commercial organic waste, California Air Resources Board, November 14, 2011